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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,189	09/12/2003	Darwin Mitchel Hanks	200310345-1	8310

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FORT COLLINS, CO 80527-2400

EXAMINER

LAMB, CHRISTOPHER RAY

ART UNIT	PAPER NUMBER
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2627

MAIL DATE	DELIVERY MODE
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10/22/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/661,189

Applicant(s)

HANKS ET AL.

Examiner

Christopher R. Lamb

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,7,13,15-21,25-35,38-40,45,46,51 and 52 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

- 5) ☐ Claim(s) _____ is/are allowed.

- 6) ☒ Claim(s) 1,3,4,7,13,15-21,25-35,38-40,45,46,51 and 52 is/are rejected.

- 7) ☐ Claim(s) _____ is/are objected to.

- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.

- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)

- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

- 5) ☐ Notice of Informal Patent Application

- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 4, 7, 13, 15, 16, 19-21, 25-29, 34, 35, 38-40, 45, 46, 51 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda et al. (US 2002/0191517) in view of Black et al. (US 3,426,337).

Regarding claim 1:

Honda discloses:

A method to sense the speed of an optical disk (paragraph 37) having a tracked data side on which data may be stored and an untracked non-data side (paragraph 30), the method comprising:

rotating the disk (paragraph 37);

determining a rotational speed of the disk (paragraph 37); and

controlling a rotational speed of the disk (paragraph 37).

Honda does not disclose:

A method of using electromagnetic radiation to sense the speed of the disk;

wherein the disk includes a pattern of reflective and non-reflective regions or a pattern of magnetic and non-magnetic regions aligned circularly about the disk, the method comprising:

sensing, with a stationary detector, a frequency of electromagnetic radiation radiating from the pattern on the rotating disk;

determining from the sensed frequency a rotational speed of the disk; and
controlling, with the sensed frequency, a rotational speed of the disk.

Black discloses a method of using electromagnetic radiation to sense the speed of a disk,

wherein the disk includes a pattern of reflective and non-reflective regions or a pattern of magnetic and non-magnetic regions aligned circularly about the disk (Fig. 1; column 4, lines 15 to 40),

the method comprising:

sensing, with a stationary detector, a frequency of electromagnetic radiation radiated from the pattern on the rotating disk (column 4, line 65 to column 5, line 5);

determining from the sensed frequency a rotational speed of the disk (column 5, lines 35-70); and

controlling a rotational speed of the disk (column 5, lines 35-70).

Black discloses that it is "highly desirable" to be able to control position in direct reference to the disk itself (column 1, lines 40-60). Note also that Black teaches detecting the radial position (column 2, line 55 to column 3, line 40) with the method also.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include in Honda wherein the method includes using electromagnetic radiation to sense the speed of an optical disk having a tracked data side on which data

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may be stored and an untracked non-data side (already including in Honda) that includes a pattern of reflective and non-reflective regions or a pattern of magnetic and non-magnetic regions aligned circularly about the disk (as taught by Black), the method comprising:

rotating the disk (already present in Honda);

sensing, with a stationary detector, a frequency of electromagnetic radiation radiating from the pattern on the rotation disk (taught by Black);

determining from the sensed frequency a rotational speed of the disk (taught by Black); and

controlling, with the sensed frequency, a rotational speed of the disk (taught by Black).

The motivation would have been to control position in direct reference to the disk; Black, as noted, indicates this is highly desirable.

Regarding claim 3:

In Honda in view of Black the pattern comprises a spoke pattern (seen in Black Fig. 1).

Regarding claim 4:

In Honda in view of Black the pattern comprises a gear-tooth pattern (seen in Black Fig. 1).

Regarding claim 7:

In Honda in view of Black the pattern is positioned on an inner rim or on an outer rim of the disk, or both, (apparent from Black Fig. 1) outside a label area (Black, column

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4, lines 10-15, "the principles of the invention are also directly applicable to systems in which the reference pattern and data storage areas are separate," and in Honda in view of Black the label area is the "data storage area" for that side of the disk) on the non-data side of the disk (it's the non-data side because that is the side Honda is printing to in paragraph 37).

Regarding claim 13:

Honda in view of Black discloses:

A device for interacting with an optical disk having a tracked data side on which data may be stored and an untracked non-data side (Honda paragraph 30) that includes a pattern of reflective and non-reflective regions aligned circularly about a rim of the disk (taught by Black as discussed above), the device comprising:

a rotation device configured to rotate the disk (Honda paragraphs 36-37);

an electromagnetic radiation source directed at the rim, wherein electromagnetic radiation radiated from the reflective regions of the pattern originates from the electromagnetic radiation source directed at the rim (part of the teaching of Black: column 4, line 50 to column 5, line 5);

an electromagnetic radiation sensor configured to sense a frequency of electromagnetic radiation radiated from the reflective regions of the pattern (Black column 4, line 50 to column 5, line 5); and

a controller coupled to the electromagnetic radiation sensor, the controller configured to, with a sensed frequency of electromagnetic radiation radiated from the reflective regions of the pattern, control a rotational speed of the disk (Honda already

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endeavored to control the rotation speed, as per paragraph 37. Black teaches controlling it using the electromagnetic radiation as previously discussed) and establish an absolute reference for a radial positioning on the untracked non-data side of the disk (the spoke pattern is used to establish the radial position, as taught by Black: e.g., column 2, line 55 to column 3, line 40. Thus the pattern establishes "an absolute reference for a radial positioning.").

Regarding claims 15-16:

All elements positively recited have already been identified with respect to earlier claims. No further elaboration is necessary.

Regarding claim 19:

In Honda in view of Black the rotation device includes:

a spindle coupled to the disk when the disk is installed in the device (seen in Honda Fig. 6) and

a motor coupled to the spindle (labeled "spindle motor" in Fig. 6).

Regarding claim 20:

In Honda in view of Black the controller includes a motor controller configured to control the motor (Honda paragraphs 36-37).

Regarding claim 21:

All elements positively recited have already been identified with respect to earlier claims. No further elaboration is necessary.

Regarding claim 25:

In Honda in view of Black the controller includes a radial positioner for controlling a placement of a beam of the electromagnetic radiation on the disk (Honda paragraph 38).

Regarding claim 26:

Honda in view of Black discloses:

A mass storage device having media that is rotateable, comprising:

means for sensing electromagnetic radiation with a stationary sensor from a pattern of reflective and non-reflective or magnetic and non-magnetic regions aligned circularly about a rim of a trackless non-data side of the media (taught by Black as discussed above);

means for controlling the rotational speed of the media based on the sensed electromagnetic radiation (taught by Black as discussed above);

means for positioning radially an electromagnetic source with respect to a surface of the trackless non-data side of media based on the sensed electromagnetic radiation (this is part of the teaching of Black: Black's method detects both the rotating speed and the radial position, as in Black column 2, line 55 to column 3, line 40); and

means for controlling exposure of the media by the electromagnetic source in conjunction with the means for controlling and the means for positioning (taught by Black).

Regarding claims 27-29, 34, 38, and 51:

All elements positively recited have already been identified with respect to earlier claims. No further elaboration is necessary.

Regarding claim 35:

Honda in view of Black discloses a mass storage device as discussed above.

Honda in view of Black does not disclose wherein the means for controlling rotational speed includes a motor controller configured to control the rotational speed of the media to 0.25 meters/second at an accuracy of 0.02 percent.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include these speeds and accuracies.

The motivation would have been: in the course of routine engineering optimization/experimentation to determine the necessary print accuracy. Moreover, absent a showing of criticality, i.e., unobvious or unexpected results, the relationships set forth in these claims are considered to be within the level of ordinary skill in the art.

Additionally, the law is replete with cases in which the mere difference between the claimed invention and the prior art is some range, variable or other dimensional limitation within the claims, patentability cannot be found.

It furthermore has been held in such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range(s); see *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Moreover, the instant disclosure does not set forth evidence ascribing unexpected results due to the claimed dimensions; see *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338 (Fed. Cir. 1984), which held that the dimensional limitations failed to point out a feature which performed and operated any differently from the prior art.

Regarding claims 39, 40, and 45:

These claims are to a program storage system readable by computer for implementing the earlier method claims: Honda Fig. 6 shows that the apparatus is controlled by a computer. All other elements of these claims have already been identified with respect to earlier rejections.

Regarding claim 46:

Honda in view of Black discloses a program storage system as discussed above.

Honda in view of Black does not disclose wherein "controlling a rotational speed of the disk includes controlling the rotational accuracy of a spindle onto which the disk is fixed to allow placement to within a quarter of a pixel at 600 dpi on the disk.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include this print accuracy.

The motivation would have been: in the course of routine engineering optimization/experimentation to determine the necessary print accuracy. Moreover, absent a showing of criticality, i.e., unobvious or unexpected results, the relationships set forth in these claims are considered to be within the level of ordinary skill in the art.

Additionally, the law is replete with cases in which the mere difference between the claimed invention and the prior art is some range, variable or other dimensional limitation within the claims, patentability cannot be found.

It furthermore has been held in such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves

unexpected results relative to the prior art range(s); see *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Moreover, the instant disclosure does not set forth evidence ascribing unexpected results due to the claimed dimensions; see *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338 (Fed. Cir. 1984), which held that the dimensional limitations failed to point out a feature which performed and operated any differently from the prior art.

Regarding claim 52:

The method of Honda in view of Black includes wherein sensing the reference pattern comprises scanning the reference pattern with a first light and detecting light reflected from the pattern (taught by Black as discussed above) and the method further comprises, based on the establishing, positioning a second light radially on the disk (the second light is the printing laser of Honda).

3. Claims 17, 30, and 32 rejected under 35 U.S.C. 103(a) as being unpatentable over Honda in view of Black as applied to the claims above, and further in view of Nakamura (4,987,301).

Regarding claim 17:

Honda in view of Black discloses a device as discussed above.

Honda in view of Black does not disclose wherein "the electromagnetic radiation source includes a coherent electromagnetic radiation source."

The electromagnetic radiation source was taught by Black. Black does not disclose whether the source is coherent or non-coherent (although, since Black was filed in 1964, it is probably non-coherent).

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Nakamura discloses that electromagnetic radiation sources used to track disc speeds are typically coherent (lasers: Nakamura, column 1, lines 5-30).

It would have been obvious to include in Honda in view of Black wherein the electromagnetic radiation source is a coherent source, because coherent and non-coherent sources are used in the same environment, for the same purpose, and achieve the same result (this is shown by Nakamura's "typically:" clearly it is not necessary). Furthermore, one of ordinary skill would have expected Applicant's invention to work equally well with a non-coherent source.

Regarding claims 30 and 32:

These claims are similar to claim 17 and similarly rejected.

4. Claims 18, 31, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda in view of Black as applied to the claims above, and further in view of Satoh (US 5,119,363).

Regarding claim 18:

Honda in view of Black discloses a device as discussed above.

Honda in view of Black does not disclose wherein "the electromagnetic radiation source includes a non-coherent electromagnetic radiation source."

The electromagnetic radiation source was taught by Black. Since Black was filed in 1964, the electromagnetic radiation source taught by Black is probably a non-coherent source; nonetheless, Black does not explicitly disclose this.

Satoh disclose wherein an electromagnetic radiation source (used in the same environment for the same purpose) is a non-coherent radiation source. Satoh discloses this avoids the need to use a laser (column 5, lines 1-20; column 2, lines 45-55).

It would have been obvious to one of ordinary skill in the art to include in Honda in view of Black wherein the electromagnetic radiation source includes a non-coherent electromagnetic radiation source.

The motivation would have been to avoid the need to use a laser (this would be cheaper).

Regarding claims 31 and 33:

They are similar to claim 18 and are similarly rejected.

Response to Arguments

5. Applicant's arguments filed August 31st, 2007 have been fully considered but they are not persuasive.

Regarding claim 51:

First, in the previous Office Action, the Examiner had rejected this claim noting that all elements positively recited had already been addressed in earlier rejections. Applicant argues that this was not true, but fails to identify any claim limitation that had not already been addressed. In any case, since Applicant amended the claim, this argument is moot.

Next, Applicant argues that the new claim limitation requiring "an absolute radial location" renders the claim allowable over the prior art. Applicant states that "an

absolute reference is a point or location that does not change,” and argues that Black does not teach this element.

The claim specifically requires “establishing an absolute radial location as a reference for radial positioning on the non-data side of the disk.”

Black discloses using the pattern to determine the radial location of the transducer on the disc. The radial location determined by Black is used as a reference for radial positioning, because the determined position is used to correct the position (column 3, lines 1-40). Black does not use the word “absolute,” but any radial location determined by Black could be reasonably considered an “absolute” radial location. For example, “absolute” can mean “not to be doubted or questioned; positive” (American Heritage Dictionary, Fourth Edition), and the radial location determined by Black is not doubted by the system because it is determined directly from the disc. Therefore this argument is not persuasive.

Regarding claims 13 and 39:

Applicant repeats the argument from claim 51; it is not persuasive here either.

Regarding claims 1 and 26:

Applicant argues that Black does not disclose a stationary detector. However, the actual light detector of Black is the light-sensitive transducer (Fig. 1: 50), which is stationary. As Applicant argues, Black does have other elements in the detecting system that are not stationary, but since the light-sensitive transducer is stationary, Black certainly discloses “sensing, with a stationary detector, a frequency of electromagnetic radiation.”

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Lamb whose telephone number is (571) 272-5264. The examiner can normally be reached on 9:00 AM to 6:30 PM Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CRL 10/16/07

/William Korzuch/
SPE, Art Unit 2627